

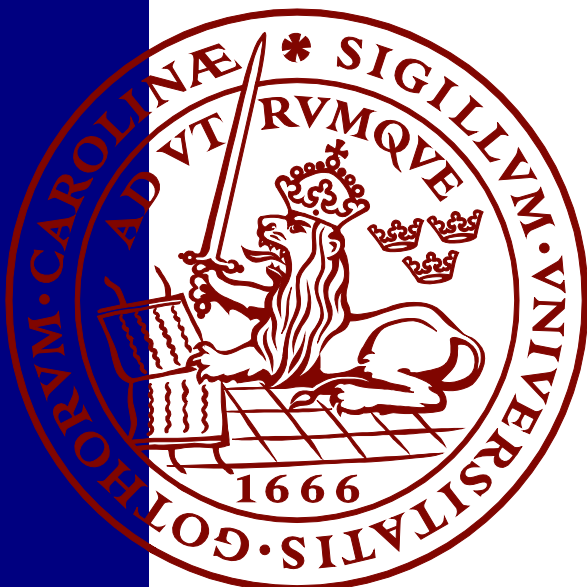
Cities Gone Wild: Urban Rewilding in Disadvantaged England

Analysing the Impact of Urban Rewilding for Disadvantaged Communities in England and their Potential to Create Sustainable Green Spaces for All

Ophélie Phillips

Master Thesis Series in Environmental Studies and Sustainability Science,
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A thesis submitted in partial fulfillment of the requirements of Lund University
International Master's Programme in Environmental Studies and Sustainability Science
(30hp/credits)



LUCSUS

Lund University Centre for
Sustainability Studies



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Abstract

England is one of the most nature-depleted countries in the world. Rewilding creates ‘benefits for both ecosystems and societies’ (Perino et al., 2019). Disadvantaged communities are often those who would benefit most yet are continually side-lined for their more privileged counterparts. Through a literature review and three interviews with experts related to each research question, focus is placed on not only how rewilding projects could aid these communities but also how communities can contribute to rewilding. Rewilding can improve health and societal cohesiveness, while protecting the environment and tackling climate change (Holland, 2021). Active citizenship is necessary for long-term success, yet a key barrier remains to ensure the space is inclusive to all, regardless of age, disability, or ethnicity. Rewilding can transform environments and communities at low cost. As projects are context-specific, however, a wide range of stakeholders – including the community – need to be involved throughout for it to be successful.

Key words: urban rewilding, disadvantaged groups, community engagement, urban green space, accessibility, barriers

Word Count: 11168

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List of Abbreviations

EJ	Environmental Justice
UGS	Urban Green Space
NbS	Nature-Based Solutions
NPGS	National Parks and Green Spaces
CO ₂	Carbon Dioxide
UHI	Urban Heat Island
BPSP	Blind and Partially Sighted People
BAME	Black, Asian and Minority Ethnic
NGO	Non-Governmental Organisation

“Just living is not enough," said the butterfly, "one must have sunshine, freedom, and a little flower.”

Hans Christian Andersen (1876/2010)

1 Introduction

1.1 State of Nature and Social Inequity

In 2019, the National Biodiversity Network released their State of Nature report, showing just how much nature has been lost (National Biodiversity Network, 2019a). In the last century, 97% of the UK’s wildflower meadows have disappeared. Populations of the coastal seabird the Kittiwake have declined by 70% since 1986 due to climate change and habitat loss. Only 9% of England is covered by woodland. The Biodiversity Intactness Index – a tool to measure biodiversity – found England to be in the bottom 10% of countries and the most nature-depleted country among the G7 (Davis, 2020). Issues lay not just on an environmental scale, but on a socioeconomic scale too. Wealth disparity in England is among the highest in EU countries, with the top 10% accounting for 44% of total wealth, while the poorest 50% own just 9% of all wealth (The Equality Trust, 2019). There is now ‘acute socioeconomic polarisation’ in the UK compared to other large European countries (Dorling, 2015, p.24). Exacerbating matters, the UK is currently experiencing the worst cost of living crisis since 1972, with prices spiralling and the average Brit being £900 worse off this year than last year (Brignall, 2022). The cost of living crisis, like other socioeconomic reflections of society, is affecting certain groups worse than others. For example, disabled adults are three times more likely not to be able to afford their food as a result of price hikes compared to non-disabled adults (Scope UK, 2022). Regarding urban greenery, while disadvantaged groups such as disabled people and Black, Asian and Minority Ethnic (BAME) are the ones most likely to benefit from local green space, they also have the least access to it (Holland, 2021).

Urban rewilding is one of the emerging responses to biodiversity loss and the decrease in urban green space. Urban rewilding tries to boost biodiversity, establishing functioning ecosystems in urban environments (Citizen Zoo, 2022). Even without rewilding efforts, due to increasing urbanisation and the abundant levels of food found in rubbish bins and littering pavements, some species have already started the transition towards built-up areas. When comparing

urban ponds to rural ponds, similar numbers of invertebrates have been found in both, with urban ponds recording higher levels of species diversity (Webb & Moxon, 2021). Apart from biodiversity, urban rewilding can improve air quality and mitigate climate change (Lehmann, 2021). Furthermore, urban rewilding can provide valuable benefits for disadvantaged groups, promoting health and wellbeing (Bayulken et al., 2021).

To increase the chance of the success and long-term sustainability of the project, community engagement at all stages is key. For example, since 2008/9, public sector expenditure on biodiversity as a proportion of GDP has fallen by 42%, but volunteer time has increased by 46% since 2000 (National Biodiversity Network, 2019b). Community engagement is thus not only integral for the viability of such kinds of environmental projects, but makes citizens who have been side-lined and oppressed key stakeholders in the venture.

1.2 Research Question

The main research question for my thesis is thus:

What benefits can urban rewilding provide to disadvantaged groups, and how can their involvement contribute to the success of urban rewilding?

The research question has then been split into three sub-questions:

1. What are the benefits of urban rewilding for disadvantaged groups?
2. What are some of the barriers facing inclusive urban rewilding?
3. How can community engagement improve the chances of success of urban rewilding?

The aim of the thesis is to conduct an extensive literature review analysing how rewilding can benefit those in society who are most in need, and how they, in turn, can overcome some of the barriers to boost urban rewilding. The use of the word success here is used to denote the design, implementation, economic viability, and continued use and quality of urban rewilding areas.

1.3 Contribution to Sustainability Science

As research on urban rewilding is only just developing, this thesis contributes to sustainability science by concentrating on the potential of urban rewilding through a nature-based solution (NbS) and environmental justice (EJ) lens. Urban rewilding has the chance to bring social, health, economic, and environmental benefits, but current rewilding focus has been predominantly placed on the environmental. The first phrase on the UNESCO website about sustainability science states ‘environmental change drives social transformations’ (UNESCO, 2020). Through community engagement, urban rewilding projects can improve health and wellbeing, increase pro-environmental behaviour, and empower citizens to take ownership through consultation and volunteering (Holland, 2021). Urban Rewilding is a transdisciplinary field, encompassing 5 of the UN’s 17 Sustainable Development Goals: good health and wellbeing (goal 4); reduced inequalities (goal 10); sustainable cities and communities (goal 11); climate action (goal 13); and life on land (goal 15).

2 Problem Concept

2.1 Definitions

As some of these terms don’t have clear-cut definitions, I have clarified the definitions that I will use below.

Urban Rewilding

Danford et al. in their introduction to Rewilding, describe the “four natures” concept. These are pristine wilderness (first nature); agricultural landscapes (second nature); deliberately created greenspaces (third nature); and what Rupprecht and Byrne (2014) describe as “unintentional informal green space”, which include vacant lots, brownfield sites, transit corridors, etc. (2018, p.377). Rather than limiting rewilding to abandoned urban spaces, urban rewilding will be more loosely defined as ‘restoring biodiverse habitats in urban green spaces’ (Mills et al., 2017, p.1). This includes, therefore, pre-existing greenspaces as well as other landscapes. The difference between rewilded areas and other greenspaces is that rewilding may transform to become an ‘urban ecosystem’ with ‘ecosystemic succession’ that is more resilient to climate change (Kaae et al., 2019, p.349).

Urban

As this thesis focuses on England, it will follow the UK Government's definition of urban as a built-up area with more than 10,000 people (Bibby, 2013, p.22).

Urban Green Space

The World Health Organisation (WHO) includes greenspace as part of "green infrastructure" and include: roadside greenery; small urban greenspaces (such as gardens, pocket parks, and playgrounds); green roofs and facades; parks and urban meadows; greenways and corridors; coastal, riverside, and lakeside trails; recreational and urban gardening facilities (such as community gardens, school playgrounds, sports areas); and finally urban woodlands, forests, and natural wildlife areas (World Health Organisation, 2017, p.6).

Disadvantaged groups

In this thesis I will be following the definition of "disadvantaged" by the European Institute for Gender Equality (EIGA). They define it as 'groups of persons that experience a higher risk of poverty, social exclusion, discrimination and violence than the general population, including, but not limited to, ethnic minorities, migrants, people with disabilities, isolated elderly people, and children' (European Institute for Gender Equality, 2022).

2.2 A History of Rewilding

In 1992, Dave Foreman, an ardent conservationist who founded the Rewilding Institute and co-founded The Wildlands Project coined the phrase "rewilding". Discussing it in the Rewilding Earth podcast, Foreman describes talking with conservation biologists Michael Soulé and Reid Noss about bringing together grassroots conservation and conservation biology (Humphrey, 2018). Around 1990, Foreman decided to focus specifically on wilderness restoration, and came up with the four W's: wilderness, wildways, wildiores – the old English term for wild animals – and wardens. Around the same time, but focusing more on ecological conservation, Soulé and Noss defined rewilding as the 'three C's: cores, corridors, and carnivores' (Soulé & Noss, 1988, p.22). Over the last thirty-four years, however, rewilding has 'changed over time' to 'take on new meanings' (Jørgensen, 2015, p.482). As the term moved from scientific to academic to popular discourse, rewilding has captured the public's attention, with an ever-increasing number of published academic articles and discourses centred around the term, differing in rewilding definitions, and arguing over the 'scale, connectivity, and level of human influence' rewilding should have (Carver et al., 2021).

While the potential that rewilding offers is bringing new life to conservation efforts, the lack of clarity on the term rewilding limits application (Rewilding Thematic Group & IUCN, 2017; Journal of Applied Ecology, 2019). The Rewilding Thematic Group (RTG) under the IUCN, have sought to bridge the gap and create a universal definition and guiding principles for rewilding. They define rewilding as:

‘The process of rebuilding, following major human disturbance, a natural ecosystem by restoring natural processes and the complete or near complete food-web at all trophic levels as a self-sustaining and resilient ecosystem using biota that would have been present had the disturbance not occurred.’ (2018, p.1)

From the days of just focusing on large carnivores and vast wilderness areas, rewilding has developed to become applicable to a host of different environments, recognising that any long-term success must include people too. The IUCN and the Rewilding Thematic Group therefore brought together the major pillars to rewilding.

The RTG (2018, pp.1-4) conclude ten key concepts of rewilding are:

1. Rewilding utilises wildlife to restore trophic interactions.
2. Rewilding employs landscape-scale planning that considers core areas, connectivity, and co-existence.
3. Rewilding focuses on the recovery of ecological processes, interactions and conditions based on reference ecosystems.
4. Rewilding recognises that ecosystems are dynamic and constantly changing.
5. Rewilding should anticipate the effects of climate change and where possible act as a tool to mitigate impacts.
6. Rewilding requires local engagement and support.
7. Rewilding is informed by both science and indigenous and local knowledge.
8. Rewilding is adaptive and dependent on monitoring and feedback.
9. Rewilding recognises the intrinsic value of all species and ecosystems.
10. Rewilding requires a paradigm shift in the co-existence of humans and nature.

2.3 Urban Rewilding Across the World

According to the Canadian government, 'Vancouver has been working with the community to address the environmental challenges' facing the city to transform it into a 'leader in implementing changes' (City of Vancouver, 2017). Along this line, in 2009, Vancouver published "The Greenest City 2020 Action Plan" which was 'a decade-long effort to make Vancouver a greener place to live, work, and play' (City of Vancouver, 2021). Out of the 18 targets set, only 8 were achieved. Of the six targets relating to green buildings and access to nature, only one was reached by 2019 – 'restore or enhance 25 hectares of natural areas (City of Vancouver, 2021). Although all but increased canopy cover showed improvements, the Greenest City initiative demonstrates that government schemes alone are not enough to transform urban neighbourhoods into greener areas.

Two non-governmental organisations have pushed for Vancouverites to educate themselves on rewilding Vancouver.. The first is Rewild Vancouver, a local organisation 'aiming to educate communities and inspire change' by building 'support for rewilding practices' (Rewild Vancouver, n.d.). The organisation has led tours and community events to show the potential to incorporate vegetation into pre-existing neighbourhoods and areas. Adapting to the Greenest City Goals, their focus is on empowering residents to take the goals 'upon themselves' and add 'biodiversity to residential spaces' through their rewilding kits and workshops (City Studio Vancouver, 2022). While Rewild Vancouver is empowering residents to look at the present for transformational change, the Museum of Vancouver is empowering residents rather to look at the past for transformational change, through their exhibition "Rewilding Vancouver – Remember. Reconnect. Rewild" (Museum of Vancouver, 2014). Their aim is for visitors to discover what nature in Vancouver was like in the past through taxidermy, soundscapes, storytelling and photography. Their belief is that when we forget certain species such as whales used to be present, 'absence of whales seems normal' but once remembered, 'it becomes possible to imagine Vancouver with whales once again' (Glover, 2014). Each of these three initiatives come at rewilding from a different angle, highlighting the flexibility and possibilities of urban rewilding solutions.

2.4 Nature in England

Dr Adriana De Palma, a senior researcher at London's Natural History Museum states that the UK was "consistently in the bottom 10% of nations in terms of biodiversity intactness" (McKie, 2021). This is not a new phenomenon for the United Kingdom and points to a heritage of the birthplace of both the Industrial and Agricultural Revolutions. During the Second Agricultural Revolution, around the nineteenth century, large swathes of forest were replaced by farmland as farming became more efficient and a monocrop rotation system was established. The Industrial Revolution also transformed society but at a steep environmental cost. Use of fossil fuels such as coal transformed production patterns leading to factory-based mass production of goods. Along with dangerous levels of air pollution, green areas were replaced with quarries or large factories that then released chemicals into water systems further affecting Britain's ecology. Compounded with the most rapid 'population growth that has ever been recorded', natural landscapes were further transformed into settlements and cities to cater to the increasing population (Tepper & Borowiecki, 2013, p.220). Today, the UK remains one of the world's most densely populated nations with 82.9% of England's population living in urban areas, making urban rewilding a crucial opportunity for urban citizens to connect with nature while also enabling urban wildlife to flourish (GOV.UK, 2021).

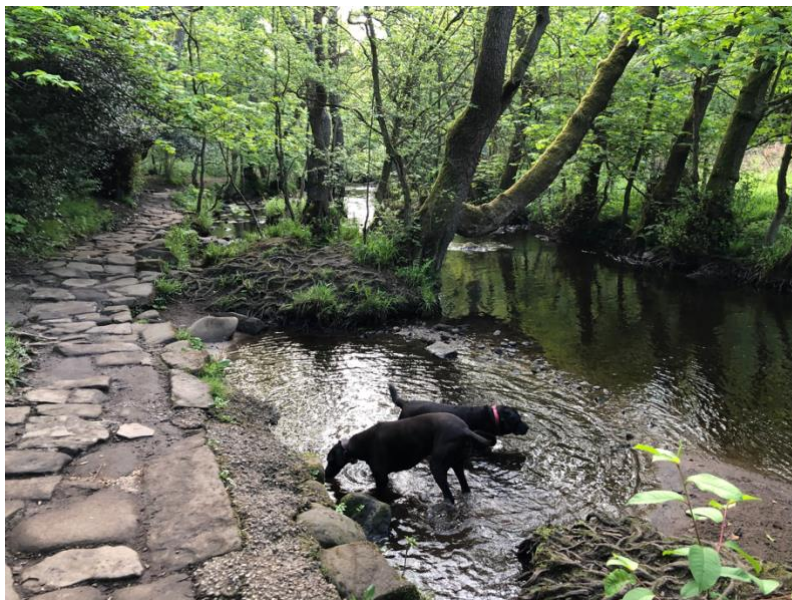


Figure 1 Rivelin Valley Trail (Own Source)

Note. Rivelin Valley in Sheffield, South Yorkshire. This river used to be a key area of industrial activity with no greenery and the water heavily polluted. Now transformed into a conservation zone, the Rivelin Valley trail is approximately 4km long and includes a park, café, and toilets making it popular for both Sheffielders and local wildlife alike.

Some species are now doing better in urban environments, making a nation-wide effort for urban rewilding even more pressing. An example of this is the native hedgehog, *Erinaceus europaeus*, which was voted the UK's favourite mammal in 2016 (Royal Society of Biology, 2016). In 2020, the IUCN put hedgehogs on its Red List, a global database of threatened species. Between 2007 and 2020, UK hedgehog populations reduced by 46% due to habitat loss and habitat fragmentation (Begum, 2020). Senior curator at the Natural History Museum Roberto Portella Miguez stresses the need for "protecting and restoring large areas of suitable habitat" to help fauna, flora, and fungi alike recover (Begum, 2020). As habitat loss and habitat fragmentation have been principally caused by urban development and farming, it is important that rewilding efforts are also focused in these two areas. While hedgehog populations continue to plummet in rural areas, "Hedgehog highways" linking gardens, suitable habitat and food availability, helped to increase and stabilise hedgehog populations in urban areas. Ecologist Hugh Warwick now states that while this is good news, we must continue to push for the survival of hedgehogs, with gardens needing to become a place shared with nature, rather than the barren tidiness as seen in magazines (Greenfield, 2022).

2.5 Urban Rewilding in England

On 22nd July 2019, London became the world's first National Park City (London National Park City, 2021). The Charter of the London National Park City stated that the main goals of this movement were: lives, health and wellbeing; wildlife, trees and flowers; places, habitats, air, water, and land; time outdoors, playing, walking, and cycling; decisions, sharing, learning and working together; and finally, relationships with nature and with each other (London National Park City, 2019). Many of these overlap with the IUCN concepts of rewilding (IUCN & Rewilding Thematic Group, n.d.). This movement is in conjunction with three other rewilding projects: the Mayor of London Sadiq Khan's "London's Green Revival" project, private partnership's "Wild West End", and community led "Rewild My Street" (Mayor of London, 2022; Wild West End, 2017; Sian Moxon, 2018). As part of the green campaign, Khan awarded £600,000 to 19 projects from the Rewild London Fund (Mayor of London, 2022). These projects will create and restore over 250 hectares of habitat, connecting 54 areas of habitat and planting 100,000 trees. The projects come as part of the mayor's commitment that all Londoners live within a ten-minute walk of green space (Mayor of London, 2022). The Wild West End project, organised by some of the biggest organisations in the area such as The Crown Estate and Shaftesbury, aims to 'protect and support wildlife' as well as benefitting 'all those who come in the area' by connecting green space corridors and using a mixture of green installations, green space, and technology to increase wildlife populations (Wild West End, 2017). The Rewild My

Street Initiative developed by Sian Moxon 'provides guidance for people wishing to adapt their homes, gardens, and streets to encourage wildlife' (Sian Moxon, 2018). While all three target rewilding from different angles, their end goal is the same: to create a greener and wilder London for its wildlife and people.

2.6 Inequity

Following the pandemic, the United Kingdom is facing a poverty issue on a national scale, with predictions that as many as 16 million people will be in poverty and 1.3 million in absolute poverty (Westwater & Glover, 2022). For many of these people, they are living through in-work poverty, which is where despite one or both caregivers in full-time work, they are still struggling to make ends meet. Child Poverty Action Group, an NGO focusing on ending poverty in the UK, defines poverty as when person(s) 'lack resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary [...] in the societies in which they belong' (Child Poverty Action Group, 2016). Like with other socio-economic issues, poverty affects certain groups of the population more than others. Families with children, those with disabilities, ethnic minorities, migrants, and women, are all more likely to face poverty (Westwater & Glover, 2022). These groups are also the ones who have fewer opportunities to access urban green spaces and speak out about the difficulties they face (B. Wilde, personal communication, March 15, 2022).

2.7 Problematizing "Nature"

Nature and humans are often considered to be dichotomous. Indeed, the Cambridge Dictionary definition of nature is "all the animals, plants, rocks, etc, in the world and all the features, forces, and processes that happen or exist independently of people" (Cambridge Dictionary, 2019). The idea of nature as seen through a screen or window corresponds closely to the development of the modern romantic idea of wilderness (Owens & Wolch, 2019, p.281). For many, nature is something that exists outside of our human "world". Nature being viewed as separate from man is not a new phenomenon. From the Bible to the Enlightenment to Mao Zedong, nature has often been depicted as a force that needs to be overcome and dominated, further separating it from mankind. Some argue that this definition of nature creates does harm that good. Fletcher argues that the feeling of separation is 'paradoxically reinforced by the very environmental education and related practices to overcome it' (2016, p.226). By decreeing that we need greater connection to nature, we are further separating it from ourselves. Cronon (1995) states that to successfully protect all parts of the

environment, big and small, we must remove perceived barriers. The tenth concept of the IUCN's 10 Rewilding Principles is 'Rewilding requires a paradigm shift in the co-existence of humans and nature', and thus can be part of the solution of bridging the proverbial divide (IUCN & Rewilding Thematic Group, n.d.).

3 Theory

The two theoretical entry points my thesis will be drawing on is nature-based solutions (NbS) and environmental justice (EJ). Combining the two together will strengthen my research by creating a theoretical framework focusing on equitable solutions.

3.1 Nature-Based Solutions

There is a growing body of research centred around nature-based solutions which is an umbrella term for ecosystem-based approaches addressing a variety of social, environmental, and economic challenges (Kruize et al., 2019; Anderson & Renaud, 2021). The European Commission, who has integrated NbS into major EU policy strategies, especially climate adaptation, biodiversity strategy, and the European Green Deal, defines NBS as:

'Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.' (European Commission, 2022)

NBS can have a multipronged effect. For example, green infrastructure can include anything from sustainable drainage systems to parks. In regard to air pollution, directly, this infrastructure can reduce CO₂ emissions as photosynthesis by vegetation converts CO₂ and water into oxygen and glucose. Indirectly, green infrastructure can promote cycling or walking to work instead of taking the car, thus lowering other traffic-related pollution. As well as environmental issues, NbS are 'increasingly recognised as sustainable approaches to address societal challenges' (Anderson & Renaud, 2021, p.1552). It is for this reason that I have chosen to use it as part of my theoretical framework looking at urban rewilding and social inequity.

3.2 Environmental Justice

The other component to my framework is environmental justice, which is ‘increasingly used as a frame for evaluating relations between people and environment’ (Walker & Burningham, 2011, p.216). The standard definition of the term is:

‘The fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies’ (Office of Legacy Management, 2019).

The concept originally emerged through grassroots activism in the U.S., during the civil rights movement in the 1960s (Greenpeace, n.d.). While environmental justice in the U.S. focused primarily on race and the proximity of minorities to toxic substances, environmental justice in the UK started with income and quickly expanding to include a plethora of deprivation and environmental variables (Fairburn et al., 2016). By including the term “justice” in environmental justice, it shifts the focus from people and communities being ‘potentially vulnerable victims’, to those same people being ‘citizens with rights to be asserted, achieved, and protected’ (Walker & Burningham, 2011, p.227). As my thesis seeks to focus particularly on disadvantaged groups who historically have not had as much access or agency regarding urban green space, an environmental justice lens will further solidify my research as an approach that looks at communities’ claims to nature and ecosystem services.

4 Methodology

4.1 Exploratory Design

Rewilding, and particularly urban rewilding is an emerging concept. Viewing urban rewilding through an environmental justice lens in particular is only just beginning to develop. For this reason, I have chosen to use an exploratory research design for my thesis. This type of research design is useful for obtaining an overarching picture of the current research topic and developing potential insights into the chosen area (Abbott & Mckinney, 2013). Where possible, I will use sources specifically pertaining to urban rewilding, but as these remain limited, I will also extract key findings from sources on urban green space (UGS) and nature-based solutions (NbS). Urban rewilding can be seen as being under

the umbrella of both UGS and NbS, providing social, economic, and environmental benefits. What differentiates urban rewilding, however, is that these areas serve to boost wildlife, as well as providing health and wellbeing benefits to people (Citizen Zoo, 2022). While many sources pertain to the ecological and social advantages posed by urban rewilding, it is important to note that not only are certain societal groups more likely to have access to urban rewilding initiatives, but that urban rewilding in itself can only be part of a solution to tackle other social and environmental issues – a single cog in the greater machine of sustainability (Fletcher, 2016).

4.2 Systematic Literature Review

To expand on the research design, I decided to use a range of scientific literature, grey literature, news articles, and websites to conduct a systematic literature review. Literature reviews are essential in academic work to ‘push the knowledge frontier’ that has been built on ‘prior existing work’ (Xiao & Watson, 2017, p.93). Furthermore, only by analysing existing literature can transdisciplinary overlaps be explored, and existing gaps found. Rewilding covers a multitude of disciplines such as urban planning, ecology, conservation, and cultural landscapes (Carver et al., 2021). Systematic literature reviews assess the scope and quality of existing material while simultaneously adhering to standard literature review guidelines which include filtering, reviewing, analysing, and synthesising material (Pati & Lorusso, 2017).

Academic material was primarily obtained through Google Scholar, PubMed, and Web of Science. The preliminary search was filtered using the words in Table 2. This was then further filtered after assessing the relevance of each article based on the title. To make this section manageable, I looked at the first 100 articles of every search. There were overlaps in the sources included in every search, particularly if the source material was a book. I thus decided to not take any overlap into consideration and look at the 100 sources, regardless of if they had appeared on one of the previous searches to make the data collection as uniform as possible. The “specific” assesses if it is linked to the actual search. For example, any searches linked to “urban rewilding” would fall into the specific category, while for “urban rewilding disability” even if the search came up with results about urban rewilding, only those linked to disability would count as specific. This is to assess how much pre-existing data there exists around the topic and to efficiently narrow down search results. After having narrowed down the relevant articles, I looked through the abstracts, with the three sub research questions in mind.

Table 1*Filtration of Sources According to Subject*

Filter	Google Scholar		Web of Science		Pubmed	
	Total	Specific	Total	Specific	Total	Specific
Urban Rewilding	25,300	84	52	26	2597	63
Urban Rewilding England	5,690	82	14	6	88	35
Urban Rewilding Benefits	11,400	88	17	12	432	82
Urban Rewilding Accessibility	18,300	21	1	1	341	58
Urban Rewilding Inclusivity	2,090	46	0	0	71	20
Urban Rewilding Disability	582	27	0	0	25	12
Urban Rewilding Equity	996	57	2	2	67	37
Urban Rewilding Environmental Justice	2,350	48	1	1	47	24
Urban Rewilding Community Engagement	3,050	68	1	0	73	29
Urban Rewilding Barriers	4,630	46	2	1	72	22

Note. Pubmed's search results were slightly different as only five results appeared when searching for urban rewilding. Because of this, I used the search results instead with "urban green space" and filtered through the data that could pertain to both urban rewilding and urban green space.

After scanning to see which abstracts and titles linked to my chosen topic, I would write it down in an excel spreadsheet that contained Author/Year; Title; Where is it from; Theory; Methods; Parent Literature; Quotes; and How is it relevant to my thesis (Figure 2). After looking through all the

relevant texts, I then amalgamated the quotes under each key point of “how is it relevant to my thesis”, for example, under a research question.

Parent Literature	Quotes	How is it relevant to my thesis?
Depietri & McPherson, 2017	349: Urban rewilding focuses on the deliberate establishment of suitable habitats for (former) native species embedded in somewhat wilder eco-subsystems in different kinds of wastelands, abandoned places, or ‘drosscapes’.	Definition of rewilding
	349: Spaces, species, and organic infrastructure are merged to enhance a type of ecosystem that either comes close to historical, wild, urban fringe landscapes before human intervention took over, or pragmatically may become an urban ecosystem; resilient under climate change and urban impacts, and with an internal ecosystemic succession, not cultivated.	History of rewilding
	349-350: When asked to imagine a typical ecotourism destination, most people will likely describe a remote wilderness largely untouched by humans (Gibson et al., 2003). This ideal of nature as separate from culture is core to the modern nature/culture dualism, which underpins much of Western thought and practice today	Part of the larger context: human-nat
	1: Misunderstanding of the rewilding concept has led to applications that harm communities and biodiversity, and threaten to undermine an approach with enormous conservation potential.	Controversy of rewilding
	Rewilding 10 principles 1: Misuse of the increasingly popular rewilding concept risks alienating communities, harming existing biodiversity and undermining confidence in a technique with enormous conservation potential.	Rewilding Definition Controversy of rewilding
	2: [IUCN] stresses the need to consider ecological, economic and societal issues in the development of rewilding initiatives and to engage all relevant stakeholders from the onset.	Why is community engagement impo other actors too
	2: Projects risk alienating local people unless stakeholders are involved in planning that identifies and mitigates such concerns. In several cases, a lack of consultation has led to local anti-rewilding campaigns causing projects to be abandoned.	Why is community engagement impo
238: Apinall (2010) sampled 237 seniors in Britain and finds that what attracts them to a park are the presence of park facilities (e.g. cafes, toilets), trees and plants, things to watch, and good maintenance. Things that deter their park use include signs of vandalism or dog fouling, youth hanging around, and heavy traffic on the way to the park	236: Older adults represent a growing segment of the population in the United States and other Western societies, and “place” becomes important for their physical and psychological health.	Why is it important to include vulner
237: Sugiyama et al. (2009), using a cross-sectional survey, find that the life satisfaction of 284 older adults in Great Britain is related to the pleasantness and safety of their neighbourhood parks and green spaces.	For low-income, inner-city seniors in particular, who live in small apartments without private yards and outdoor space, neighbourhood parks can offer respite and opportunities for contact with nature, walking, and exercise.	RQ1: how can rewilding benefit vuln
	Yet older adults visit U.S. urban parks less often than do other age groups (Kemperman & Timmermans, 2006), and are the most inactive population group (King & King, 2010).	RQ1: how can rewilding benefit vuln
	237: Our research suggests that planners must undertake four major tasks to overcome these impediments and provide meaningful opportunities for seniors—particularly low-income, inner-city residents—to fully enjoy neighbourhood parks: develop appropriate programming sensitive to diverse needs; create ways to accommodate the desire of seniors for “seniors-only” parks in areas with limited options; design features that promote both security and safety in the park along with access routes; provide atypical services in parks that compensate for the lack of outdoor green space in small, urban areas	RQ3: What are some of the barriers
	238: Parks have also been associated with opportunities for social interaction for seniors. A study of older people in the United States shows that the strength of ties among neighbours in an inner-city neighbourhood is related to the availability and proximity of parks and green common spaces	RQ2: What are the advantages of con
	242: Although seniors like to see green vegetation, they prefer that walking paths are clearly visible.	
	Focus group participants emphasise the importance of park accessibility and refer to both physical and psychological dimensions of accessibility.	RQ3: What are some of the barriers
	The presence of natural elements in a neighbourhood park is the third most favoured item raised by focus group participants: photographs showing foliage and flowers, water ponds, and wildlife solicit positive comments.	RQ1: how can rewilding benefit vuln

Figure 2 Screenshot showing excel sheet as separating the different articles into different categories.

Note. This only included literature that was pertaining to my thesis. Other sources which were not specifically relevant were not included in the spreadsheet.

3.3 Gaps in Literature

For certain topics where the literature was either vague or inconclusive, I expanded the search to include other material. This could have been either a) other sources of literature, or b) sources relating to UGS and/or NbS. An example of the former is data related to England. As I have chosen to focus on England specifically, online sources – such as governmental or NGO websites and reports – as well as news articles, provided much of the geographically specific information. An example of the latter is literature related to the rewilding benefits. Despite health benefits relating to rewilded urban spaces not being prevalent, there are a multitude of sources stating the health benefits of UGS in general (including (Kruize et al., 2019; Hunter et al., 2019; White et al., 2021; and Jia et al., 2020).

4.4 Urban Rewilding vs Urban Greening

A major limitation to the literature encountered centred around the lack of specific findings about urban rewilding, with focus generally being placed on urban green space. Urban rewilding and urban green space overlap in many areas but are not synonymous. UGS is broadly viewed as any vegetated land in an urban area including parks, green corridors, and vacant land (Greenspace Scotland, n.d.). While urban rewilding might be included in any of these areas, it promotes a return to a more biodiverse setting, away from vast swathes of immaculate, heavily controlled lawn. Rewilded urban areas can be hubs of activity and include UGS features such as park facilities, but the focus still remains on a balance between nature and urban, as seen in the IUCN principles (IUCN & Rewilding Thematic Group, n.d.).

4.5 Non-Academic Material

As mentioned above, alongside academic literature, a range of other sources including grey literature, news articles and NGO websites will also be used. Rewilding is a relatively new concept. To publish a research paper with PubMed, the median time is 100 days between the time of submission and acceptance, this, of course, not counting the time it takes to research and write the paper itself (Physics Today, 2016). Therefore, other sources of information are necessary to ensure the most updated, relevant information available. Rewilding has been massively popularised in recent decades with many non-academic groups adapting it to fit their own context. While academic journals provide a scientific standpoint on rewilding, blogs and news articles provide the other half of the coin, namely the popularist point of view. Moreover, as this thesis is on community engagement, specific attention will be given to information from established community-based rewilding projects.

4.6 Interviews

Much of the data obtained for the purposes of this thesis is literature, but to gain insights of the current standings of equitable urban rewilding, I conducted interviews with professionals currently working in the field. For a more well-rounded approach, the three experts chosen all work in different fields and semi-structured interviews were conducted. Before conducting the interviews, I held a brief talk with the interviewees to discuss whether they would be willing for me to record and

share their thoughts publicly, to which they all agreed. Although I had a set of questions to begin with, as the interviews progressed and developed certain twists and turns, I altered my questions to suit the discussion. I conducted an inductive analysis to suit the exploratory research design. After transcribing the interviews, I reviewed the data to elicit any points that hadn't been found in the literature review. Firstly, I talked to Ben Stockwell, from Citizen Zoo, one of the largest urban rewilding NGOs in the country. This was to give me a general understanding of what it is to work in urban rewilding and the barriers facing these projects. My second interview was with Michelle from Green Tides and National Parks and Green Spaces (NPGS) who provided insight into the importance citizenship and community action. Finally, I interviewed Berkeley Wilde from the Diversity Trust, an organisation that works with companies to help them navigate issues of inclusivity including race, LGBT, and disability. After transcribing the interviews, I separated out key quotes relevant to each research question.

4.7 Scope

Rather than focusing on a specific case study, the aim of this thesis is to examine the potential of urban rewilding projects to disadvantaged groups to provide environmental, social, and health benefits as well the importance of community engagement to the development and implementation of rewilding projects. Through literature, online material, and interviews, several different urban rewilding, green space, and NbS projects have been analysed, with key findings related to my research questions extracted. The hope going forward is that these findings will be useful for future rewilding projects and make a case to make sure they are more equitable.

That being said, rewilding projects are very much context specific. For these projects to be sustainable – i.e., to come to fruition, be used by locals, and be economically viable – attention must be given not only to the environmental conditions of the area, but also the socio-economic context of those developing and using the space (Kruize et al., 2019). Individual factors such as age and gender will influence users as to how they would wish to use the space, while cultural factors may influence how certain groups may generally view certain spaces. For example, (Riechers et al., 2019) found the valuation of nature vs culture was different in inner-city compared to peri-urban areas, while (Bertram & Rehdanz, 2015) notice differences between various European countries. To limit the scope of my research, I have focused particularly on England. Compared to the global average, England is a built-up nation, with 83% of its population living in an urban area as

compared to the global average of 56.2% This shows that UGS and urban rewilding may have an impact on a larger percentage of the population compared to other countries.

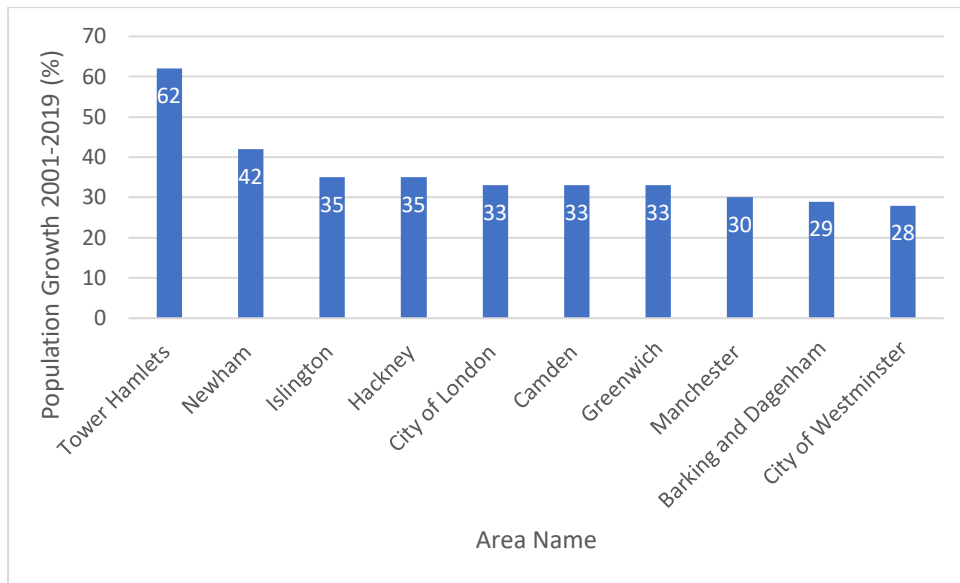


Figure 3 Fastest Growing Areas in the UK (Office for National Statistics, 2021)

Note. Every area included is an urban area with seven in Inner London, two in Outer London, and Manchester being the third most populous city in England. In England, the fastest growing populations are urban and thus urban rewilding will have an impact on an increasing number of people in the future to come.

4.8 Chosen Methodology

Rewilding is happening across the globe. Although rewilding is often context specific, issues around inequality, marginalisation and environmental injustice are global phenomena. Therefore, despite the particular focus on England, lessons can be learned from all over the world on how to rewild equitably. Conducting a literature review both helps identify gaps in existing research, and gather substantial information to answer fully my research questions. As I am specifically looking at the “human” side of urban rewilding, the decision to interview one expert per research question is used to get a more “human” perspective on the debate. During the interviews, the interviewees would occasionally stress that their preceding statement was “only their personal viewpoint” implying that it was not as important, when, in actuality, the purpose of this study is to emphasise that, to make a project successful, *every* voice is meaningful.

5 Analysis

5.1 What Are Some Of The Benefits Of Urban Rewilding For Disadvantaged Groups?

The main findings on benefits of rewilding were ecosystem services, physical and mental health, and social wellbeing as seen in Figure 3. Although here the data will be separated into distinct categories, in practice the different benefits interplay and influence each other.

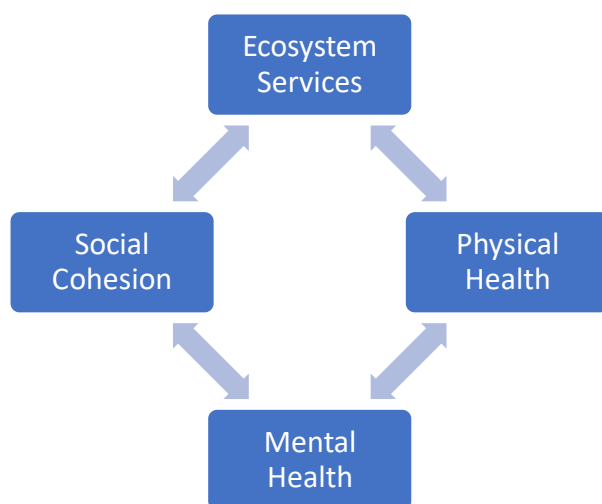


Figure 4 Interconnection of Key Benefits (Own source)

Note. The key themes of urban rewilding benefits. None of the benefits are isolated but rather are in tandem, interacting and influencing each other.

5.1.1 Ecosystem Services

Urban rewilding can act as an effective nature-based solution for climate change mitigation and adaptation purposes. As plants photosynthesise carbon dioxide (CO₂) and release oxygen, they act as a carbon store, while simultaneously lowering pollution and trapping fine dust. UK researchers, on analysing which native tree species are the best filters, have found that trees with broad, hairy leaves such as the native silver birch and conifers like pine are the best at improving air quality (Lehmann, 2021). Filtration is not only facilitated by trees, but all kinds of plants. One square metre of green roof can absorb 375g of CO₂ and bind around 10g of dust a year (Lehmann, 2021). As well

as air pollution, plants can also reduce noise pollution by acting as a sound barrier. Vegetation can additionally improve water management (US EPA, 2014). Climate change is leading to more extreme events, including flooding. Increasing storm water and pollution flows run off impervious surfaces like pavements, creating health, economic, and environmental challenges such as flooding and water pollution (Hunter et al., 2019). Upon evaluating flood risks in the UK, Walker & Burningham conclude that there is 'evidence of significant inequalities in patterns of exposure' to both the risk and impact of flooding due to deprivation and poverty, but additionally 'dimensions of age and gender' (2011, p.232). Rewilding can therefore be a useful tool as plants absorb water and act as a natural barrier against flooding.

Trees and plants moreover cool the environment, helping reduce the urban heat island effect (US EPA, 2014). The urban heat island (UHI) is an urban area that is considerably warmer than surrounding areas. The effect can be caused by a multitude of reasons such as: the proximity of buildings; waste heat from transportation, factories, and construction; and dark surfaces such as concrete absorbing and trapping heat (National Geographic Society, 2012). While temperatures in England remain moderate, the yearly average temperature is increasing along with extreme temperatures such as 2019's 38.7°C record temperature. Those most vulnerable in such heatwaves are 'young people, older adults, outdoor workers, and low-income populations' (Lehman, p.9). Trees and plants lower temperatures through shading and evapotranspiration, and thus strategically placed vegetation can provide an economical way to reduce temperatures by up to 10°C (US EPA, 2014).

5.1.2 Physical Health Benefits

Most articles on the benefits of rewilding and greening were on the health benefits green spaces can create, particularly for 'older people, children, and people with disabilities' (Ahmadpoor & Shahab, 2021, p.4). Moreover, it is estimated that though the direct benefits for an individual are small, accumulated over an entire population, they become incredibly valuable, such that the health value in England of natural environments is approximately £2.2bn per year (White et al., 2016).

The physical health benefits are mainly that urban green spaces can be an area of increased activity, thus decreasing obesity and other health issues. Obesity can increase the probability of developing a host of issues such as diabetes, stroke, several types of cancer, liver and kidney disease. As such, it was found that 10,780 hospital admissions in England in 2019/2020 were directly attributable to

obesity and over 1 million admissions where obesity was a factor (NHS Digital, 2021). Cases of obesity and other health issues were found to differ throughout the population, with severe obesity being more prevalent 'in children from more deprived areas and those from Black ethnic groups' (Ells et al., 2015, p.2). Furthermore, of those living in income-deprived areas, 'all-cause mortality and mortality from circulatory diseases' were lower in those living in the greenest neighbourhoods (Kruize et al., 2019, p.12). Rewilded areas, especially those that come from previously unused space such as vacant parking lots, can provide a place of activity for those who need it most. Additionally, green corridors provide a safer opportunity for active transport such as walking and cycling (Urban Nous, 2022). But for it to be fully effective, the National Health Service (NHS) and other public bodies in England must fully incorporate it into their health solutions. The NHS have currently launched a pilot scheme called "The Healthy New Towns" programme which emphasises the value of including green space in urban planning (NHS, 2019). By incorporating green space into other sectors like the health sector, not only will this provide a cheaper remedy for the government, but it will also increase the value of existing green space, which could then be provided adequate funding for its continuation.

5.1.3 Mental Health Benefits

Often interlinked with physical health benefits are the mental health benefits that urban green space can provide. Mental health is influenced by the social, economic, and physical environments around us. Inequality and difficult life events 'harm both mental health and residential opportunities' and thus poverty increases the risk of having mental health issues (Elliott, 2016, p.15). A study by Stigsdotter et al. found that residents living near green space scored higher on the Psychological General Well-Being Index and were less likely to suffer from a burnout (Stigsdotter et al., 2018). Mental health illness is a significant issue in England, with one in six adults experiencing symptoms of common mental health issues such as anxiety and depression, while around 20% of adults have had suicidal thoughts at one point in their life (Mental Health Foundation, 2016). Unfortunately, alongside poverty there is a widening gender disparity, with women having higher rates of self-harm, bipolar disorder, post-traumatic stress disorder, as well as being three times more likely to experience anxiety and depression (Mental Health Foundation, 2016). Recently, there has been an emergence of literature about the positive mental health benefits of wildlife in the global north (Methorst et al., 2020). The perception of biodiversity, especially seen through tree cover and certain animal species like butterflies, has a positive effect on mental wellbeing, stress, and feelings of restoration (Felappi et al., 2020). Although UGS and urban

rewilding cannot solve all the underlying issues, it can however – like with physical health – be a complementary form of recovery if integrated into the health sector.

5.1.4 Social Cohesion

As noted above, urban green space can be beneficial to the individual, but can also be advantageous to the wider community too. Having urban green space in one's community has been found to potentially reduce crime and other anti-social behaviour (Kruize et al., 2019; Hunter et al., 2019). For example, Hunter et al. (2019) noted that sites with urban greenery had lower levels of illegal dumping of waste when compared to sites without. Additionally, rewilded areas can improve social cohesion as these areas become hubs of interactivity (Kruize et al., 2019; Hunter et al., 2019). For example, one of Citizen Zoo's urban rewilding projects is Edith Gardens. (Citizen Zoo, 2021). Previously an allotment, the site became 'overgrown, filled with rubbish and debris' (Citizen Zoo, 2021). Through the work of volunteers and the council, Edith Gardens is now a revitalised nature corridor where people with disabilities can have a safe space, all while being funded by educational visits to the garden. UGS provides not only social and health benefits, but economic benefits through attracting investment and regenerating areas which are often overlooked (Holland, 2021). The amount of social capital green spaces can provide, however, lies on use by its residents, making community involvement integral to the success of rewilding projects, thus leading to the second research question.

5.2 What are the barriers facing inclusive urban rewilding?

Despite the fact that community-led rewilding projects can bring a multitude of benefits, there remains significant barriers in the realisation of such ventures. To ensure success so that green space can be accessible to all, barriers must be taken into consideration so that significant hurdles be overcome.

5.2.1 Financial Barriers

The UK is currently experiencing a living crisis with 'the highest inflation in 40 years and the worst income squeeze on record' (Resolution Foundation, 2022, p.2). Alongside the living crisis, is a strained council budget that sees the environmental budget decreasing year by year (Michelle,

personal communication, March 4, 2022). Lack of public funds leads to two main effects; the first being a lowering of quality of existing UGS due to staff cuts as they are the ones to deal with litter and basic maintenance of benches and other amenities. Studies have shown that quality is equally as integral as quantity of green space 'if not more important', as parks that are littered and poorly maintained are less attractive to locals (Ahmadpoor & Shahab, 2021, p.6). Secondly, the lack of available public budget for NbS means that prospective urban planners and NGOs must find other income streams. For organisations like Citizen Zoo, this is mainly from the public such as on the site GoFundMe (B. Stockwell, personal communication, February 9, 2022). With the cost-of-living crisis, many are now struggling with the basic cost of food and transport making them unable or unwilling to donate significantly. Going through private channels, however, can create other issues. Private organisations will want to focus on 'investments that realise economic growth, favouring real estate development' (Toxopeus & Polzin, 2021, p.2). Additionally, following Covid, the retail value of green space has increased drastically raising concern about the potential gentrification of neighbourhoods.

5.2.2 Safety

Ensuring the urban green space to be accessible to all requires the area to cater to a diverse set of needs. Users view green spaces differently based on certain sociodemographic characteristics such as 'income, education, age, and gender', as well as 'characteristics related to health status or cultural background' (Kruize et al., 2019, p.4). For certain groups such as seniors, women, and those on the LGBT spectrum, security and safety is a top priority (Loukaitou-Sideris et al., 2016). If certain groups don't feel safe in their community, they are less likely to use blue and green areas. The use of UGS by different groups in the community can cause friction, for example regarding the homeless population. In their research on how the homeless community view UGS, Koprowska et al. concluded that urban green space was a place of peacefulness for the homeless community, bridging 'between 'normality' or their past life and homelessness' (2020, p.8). From a young age, society is taught to fear and avoid homeless people, despite them being the most marginalised group in society. Therefore, there is friction between usage by the homeless, who are the 'most disadvantaged communities in the environmental justice discourse' and by the neighbouring residents (Koprowska et al., 2020, p.1).

Another group for whom UGS can provide meaningful opportunities but who simultaneously elicit unease in other demographics are young people, particularly young men. As with environmental budget cuts, funding for youth clubs and other activities have been decimated over the last decade,

creating a void for youth to have a safe and friendly place to interact (Bates, 2021). Areas like skate parks and urban green space give young men a safe space, offline, to meet their friends. However,, both the homeless in Koprowska et al.'s (2020) study, and the seniors in Loukaitou-Sideris et al.'s (2016) study specifically mentioned groups of young men as a significant barrier to park usage. To make urban rewilding areas inclusive, extensive thought will need to be given on how to promote safety and inclusivity for all participants. One way of doing this is to create gated areas that are available to different groups at different intervals. For example, Edith Gardens (a Citizen Zoo project) has hedges surrounding it on all sides to give a sense of privacy and security, as well as being additionally only open during educational visits (Citizen Zoo, 2021; B. Stockwell, personal communication, February 9, 2022). By being enclosed, it allows some of the most vulnerable in society – in this case young carers and disabled people – to be able to engage in rewilding activities in a safe environment they wouldn't have otherwise.

5.2.3 Accessibility

Alongside safety, accessibility is a key priority for disabled park users. Ensuring signing, lighting, wheelchair-friendly routes, information, and additional facilities are all important to make all users feel welcome and have their needs accommodated. In the UK, 2 million people are visually impaired, of which 330,000 are registered as blind (Bandukda & Holloway, 2020). For blind and partially sighted people (BPSP), the loss of vision often makes them 'unable to fully enjoy their outdoor experience and connect with nature' (Bandukda & Holloway, 2020, p.205). To be able to savour the green space, tactile landmarks and sounds such as running water or tactile paving can often mean the difference between a BPSP being able to go independently or being more unwilling to go because they must have a guide with them each time. To accommodate such a diverse set of needs requires resources projects often do not have, and yet are necessary for them to feel completely comfortable in using the green space.



Figure 5 Example of Tactile Paving (Own Source)

Note. An example of tactile paving. Different types of tactile paving mean different things, here it is used to guide where the bus will stop. For urban rewilding, tactile paving could be one of the methods used to help guide BPSP around the area.

5.2.4 Other Issues

Another major barrier lies within the communities themselves. These people “have often been marginalised”, Berkeley states, which leads to resistance because people have had these conversations before: “we’ve had them over and over and over again. It’s the same conversations and nothing changes” (B. Wilde, personal communication, March 15, 2022). A negative loop is then created where councillors and organisations will talk to these groups, possibly enact the changes mentioned, but have not told the community. “Trust is a huge thing. You have to build trust” Berkeley points out (B. Wilde, personal communication, March 15, 2022). The lack of trust is not only related to community projects however. Between the cost of living continuing to spiral out of control, the housing crisis leaving few to find affordable housing, British politicians defying lockdown sanctions while ordinary people suffered, and so on, people are disillusioned with politics to the point that “you just can’t look at green spaces [...] without considering the kind of wider context that we live in” says Michelle (Michelle, personal communication, March 4, 2022). As two million adults in the UK can no longer afford to eat every day due to living costs, environmental issues seem unimportant to many in comparison (Rimi, 2022).

5.3 How can community engagement improve the chances of success of urban rewilding?

The literature studied demonstrates that urban rewilding can have an impactful benefit for disadvantaged communities, but careful planning is required to overcome significant barriers – not only for future urban green space, but already existing greenery. Through extensive community engagement, urban rewilding projects can ensure relatively low-cost success for locals and local ecology alike.

5.3.1 Diversifying

By integrating community participation from the get-go, rewilding projects can ensure that the UGS meets the needs of citizens as well as capitalising on local knowledge – one of the key tenets of rewilding (Rewilding Thematic Group, 2017). Diversifying the workforce that creates these projects can make the green space appeal to a wider variety of people, while the opposite risks alienation of the community if they are not involved. Communities and local spaces cannot be “cookie cuttered”, with different communities requiring different things from their green space depending on sociocultural, political, economic, and environmental factors. Likewise, the urban rewilding area depends on the micro climate, existing ecology, and surrounding area (Kruize et al., 2019). It is important that ‘effective community engagement needs to lead to genuine community empowerment’, by allowing those often marginalised and ignored in our society to have their voices heard (Holland, 2021, p.9). Not only will this diversify who will use the green space and how it is developed, it allows them to take ownership and thus responsibility for it. Urban rewilding areas are often “unintentional landscapes” such as neglected spaces, which allows ‘for experimentation’, providing a ‘space of marginalised actors’ (Vega et al., 2021, p.391). In this area of diversity of thought and experimentation, new ideas around rewilding can materialise that would perhaps not exist in other forms of green space.

5.3.2 Volunteering

As urban rewilding remains in its infancy, community participation is essential for longstanding success. Volunteers at present remain integral to the upkeep of urban green spaces, as well as helping to track sightings of key species. Organisations such as Friends of the Earth, The

Conservation Volunteers, and local conservation groups, can ensure the high quality of urban parks through litter-picking and other activities. As England is facing a financial crisis, with year upon year, cuts being made to the environmental and social sectors, small-scale projects such as urban rewilding depend heavily on its volunteer base for upkeep, reducing costs (Kruize et al., 2019). Training volunteers benefits the green space, the volunteer itself (by providing transferrable skills), and the community at large through volunteer-led activities. Activities, events, and extensive community engagement all are crucial in promoting the long-term usage of the green space (Hunter et al., 2019). Furthermore, there are certain groups in society who would not only benefit most from park usage but also are key volunteers (B. Stockwell, personal communication, February 9, 2022). The retired and those out of work (or who cannot work), are most often volunteers as volunteering is a form of social interaction, and as they are not working the usual Monday to Friday, they are more flexible with their time. The Church Homeless Trust on their website state: ‘gardening projects across the country are inspiring confidence and a sense of community in people who have been homeless’ (The Homeless Trust, 2018). In his book on drugs *Chasing the Scream*, Johann Hari (2015) notes how addiction is often caused by psychological pain and a lack of connection. By involving the homeless and addicts, community projects such as urban rewilding enable them to find a sense of belonging and connection rarely found elsewhere (The Homeless Trust, 2018).

5.3.3 Pro-Environmental Behaviour

Involving communities and volunteers can also increase pro-environmental behaviour. Volunteers who participate most frequently are reported to be most concerned about environmental issues and have a greater sense of attachment to their local environment (Kruize et al., 2019). Projects that have allowed participants to take ownership in their learning and involvement have also been found to develop pro-environmental behaviour (Vega et al., 2021). Stemming back to that feeling of separation from nature, if one feels disconnected then it is less likely to be a high priority. Bridging that connection, volunteers can see how their actions have a direct impact on their local environments and thus their connection with nature becomes more visceral and tangible. Furthermore, by giving people real agency, “they will make really careful, considered decisions”, empowering them to personally bring about change (Michelle, personal communication, March 4, 2022). This pro-environmental behaviour does not have to be related to green spaces, but as Kruize et al. point out, activities make people – including ‘hard to reach groups such as deprived urban

communities' – become aware of health and the environment 'in a broader sense' and thus adopt 'healthier and more pro-environmental behaviour in other domains' (2019, p. 4). It is crucial that urban rewilding be not viewed as a standalone activity, but rather merely a single cog in the greater machine that is environmental policy.

5.3.4 Residential Areas

Finally, community involvement can target areas for rewilding that urban planning cannot – namely gardens and private areas. By engaging with locals to push for greater variety of greenery in their gardens, rewilding can create “corridors” (part of the original three C’s: cores, corridors, and carnivores) which can enable fauna and flora alike to expand their habitat zones (Webb & Moxon, 2021). Although BAME and economically disadvantaged groups are less likely to have gardens, the vast majority of people still have access to private outdoor space, as seen in Figure (NUMBER). This is a huge untapped potential, especially given the prevalence of concrete, gravel, and pure grass found in many English gardens. As well as benefitting biodiversity, there is ‘robust evidence’ that gardening has been found to have a ‘significant positive impact on health’ (Soga et al., 2017, pp.96-97). Moreover, it can be an educational opportunity for people to learn more about local ecosystems. In his book *Landmarks* (2015), Robert Macfarlane notes that at the time of writing, the *Oxford Junior Dictionary* (2015) was removing words such as adder and ash; bluebell and beech; hazel and heron, etc. and was instead replacing it with words including ballpoint and blog, chatroom and celebrity. Creating activities and events to encourage citizens to learn more about the abundance of life, could create a long-lasting understanding on why rewilding solutions are important. And like a spider’s web, knowledge can be passed on to their friends and family, thus spreading recognition of rewilding, giving it further credibility.

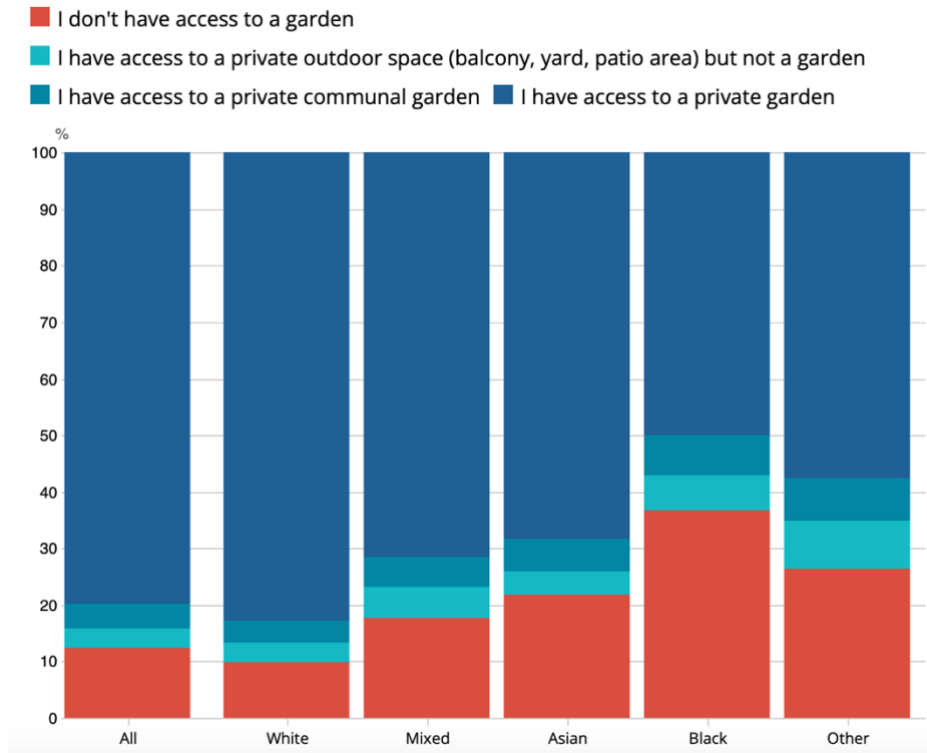


Figure 5 Garden Accessibility by Race (Office for National Statistics, 2020)

Note. Bar chart showing percentages of the population with access to a garden or private outdoor space as separated by race. The black community have the highest percentage without access to a garden, rising as high as 40%, while only 10% of the white community do not have access to a garden.

5.3.5 Influencing

With the importance of technology and social media increasing, especially after Covid, communities are becoming more confident and communicating together in ways previously unseen (B. Wilde, personal communication, March 15, 2022). Groups of users who have a long standing of using the internet as a voice, such as young disabled users, can gather momentum to instigate social change. As seen with the banning of single use plastic straws following a David Attenborough documentary, online lobbying can create quick change (Bulman, 2018). Online influence can also be about an attitude change. Environmental influencers, such as Trashisfortossers (who collects litter on her walks) or photojournalist Dave Coulson (who explores our engagement to nature through photography), are able to reach a wide and diverse audience that authorities are not (Torre, 2021; Michelle, personal communication, March 4, 2022). Furthermore, as community-led activities and workshops bring wider recognition of urban rewilding to society at large, so will it have a trickle-down effect until it becomes noticed by the government, and leads to further urban nature promotion (Vega et

al., 2021). Michelle, who also works at the National Parks and Green Spaces as well as the local organisation Green Tides, highlights the huge impact local groups such as Friends of the Earth can have through their “brilliant relationships with their local authorities or the people who own the green spaces” (Michelle, personal communication, March 4, 2022). Not only do these community groups act as a go-between, but they also share resources, stories, and training with each other and prospective rewilders, helping establish rewilding projects all around the country.

5.4 Discussion

5.4.1 Findings

Urban rewilding is still in its infancy. As a nature-based solution, urban rewilding can provide beneficial prosperity on a social, environmental, and economic scale. Often urban rewilding is viewed as a tool that can create ‘diverse physical and mental benefits’, especially for marginalised groups who are ‘staggeringly underrepresented in outdoor activity participation’ (Danford et al., 2018, p.2). By conducting a literature review, I wanted to explore the link between the potential of urban rewilding for disadvantaged groups in society and vice versa. These groups are often those with the least access to urban green space and face significant disadvantages in other areas of society, such as health, discrimination, and poverty. Therefore, rewilded urban space would provide a greater benefit to these communities than other groups in society. However, for urban rewilding to reach its fullest potential, community engagement is essential to make the area an attractive space for all. Furthermore, as England is currently facing a living crisis with significant budget cuts, volunteers provide an indispensable resource for organisations to both develop and maintain the area, as well as provide activities encourage usage of the space. The value of urban greenery rose steeply post-pandemic, as people in all corners of society became aware of the importance of local green space during lockdown after lockdown, heightening fears of gentrification. At present, the major barrier facing current rewilding projects is the cost of living crisis, leaving many in a financially desperate situation, pushing environmental issues far from their priorities.

5.4.2 Wider context

While this thesis focused exclusively on community engagement and the importance of it, it must be noted that urban rewilding needs a wide range of stakeholders and experts to ensure its success. Practically, municipalities 'often suffer from short-term decision-making cycles' while NbS 'require long-term strategies and dedicated maintenance budgets' (Toxopeus & Polzin, 2021, p.2). Therefore NGOs, government bodies, citizens, urban planners, and experts must each contribute their particular expertise to counteract the shortcomings of others. Additionally, it is not only a broader range of stakeholders that is needed, but that urban green space and planning be framed holistically and viewed as part of a complex system. Under urban planning, future urban rewilding projects must be assessed with other governmental priorities such as housing pressure and transportation. Moreover, with the health benefits urban rewilding could provide, NbS must be further integrated into the healthcare system, with support and training to enable healthcare professionals to 'embed activity in green and blue spaces into the service they provide' (Holland, 2021, p.9). Community engagement is a cog in the machine of urban rewilding which is itself a cog in the greater machination of society. Despite analysing only the cog, one cannot forget that it is part of a large machine.

In terms of environmental policy, urban rewilding cannot be considered as a complete solution to the environmental ills befalling our world today. Haluza-Delay calls for 'attention to the political-economic systems that negatively impact both natural environments and marginalise social groups' (2013, p.395). Without looking at the underlying causes of both environmental degradation and the cultural, political, and economic systems that cause such social divide and inequality, the issues will continue to crop up. In a world where large-scale change needs to be enacted to limit global warming to 2 °C, urban rewilding can become an important countermeasure to biodiversity loss, but must not substitute for wide-ranging government policy across a multitude of scales and sectors. That being said, community engagement and education on environmental topics can generate greater focus on environmental topics and thus further pressure the English government to enact more effective environmental policies.

By empowering communities in one area, it enables them to take control of the narrative in other areas (Michelle, personal communication, March 4, 2022). Empowering communities leads to the development of other community projects and so even if urban rewilding or the environment in general is not an area of interest, other groups or topics, such as food banks,

are equally empowered. As Wilde highlights, it's important provide 'as many spaces as possible' and to also 'think intersectionally (B. Wilde, personal communication, March 15, 2022). Creating sustainable communities is a multidimensional approach, meaning caring for others and giving them a voice is paramount, even if not directly linked to environmental issues.

5.4.3 Limitations

One of the greatest limitations to this literature review was the lack of information on accessibility to nature for disabled groups. Bandukda et al., note that much of the existing research on connecting to nature is 'not inclusive of blind and partially sighted individuals (2019, p.1). Indeed, articles that mentioned disabled peoples most often mentioned them in a general manner rather than delving into the specifics of the relationship between those with disabilities and the urban outdoors. Figure 6 demonstrates the lack of searches describing urban rewilding and disabled people, despite a multitude of studies denoting the benefits of urban rewilding and urban green space of disadvantaged communities – including disabled people. Of course, disabilities are incredibly varying and cannot be bundled into a single category, but that does not mean that research into accessibility is unnecessary. There are 14.1 million disabled people in the UK, with 8% of children being disabled and that figure rising to 46% of pensioners (SCOPE, 2016). 37% of disabled people have felt that there was a lot of prejudice around disability, with 87% of parents of disabled children feeling judged when they go out (SCOPE, 2016). As one of the groups most likely to cut themselves off from the outdoors, urban rewilding projects can provide significant benefit to these individuals if made as accessible as possible.

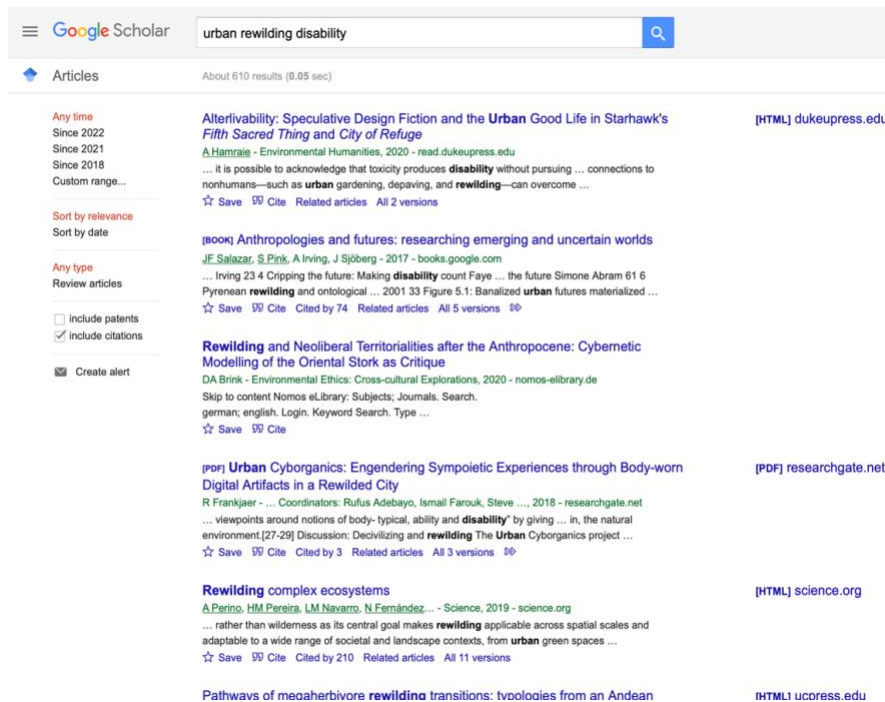


Figure 6 Screenshot from Google Scholar (Own Source)

Note. First five entries on “urban rewilding disability” in Google Scholar. Of the five only the last one, Rewilding Complex Ecosystems, was relevant to my research questions.

As also noted in the methodology section, a significant limitation was the lack of articles specifically relating to urban rewilding, as opposed to urban green space more generally. Though urban rewilded areas and urban green space overlap in many areas, the lack of information on how urban rewilding usage differs to urban green space is a void that remained unexplored in my thesis but should be focused on in further research.

5.4.4 Next Steps

As noted in the limitations sector, the next step that must be taken in this area is further research, including further research on disability and green space; data of urban rewilding projects in England at each stage of the project; how usage of urban rewilding and urban green space differ; and on urban rewilding projects interacting with disadvantaged communities. Despite certain gaps in existing research, urban rewilding shows promise to help reverse England’s branding of being one of the world’s most nature-depleted countries – one step (human, hedgehog, or otherwise) at a time.

6 Conclusion

The research question examined in this thesis was: what benefits can urban rewilding provide to disadvantaged groups, and how can their involvement contribute to the success of urban rewilding? The main benefit of rewilding was linked to health. Greenery and transformation of grey space into green area provided somewhere for locals to destress and exercise (Holland, 2021). This was shown to be more important for disadvantaged groups who had higher levels of weight-related diseases as well as higher levels of mental health issues (Ells et al., 2015; Mental Health Foundation, 2016). Despite being advantageous for health and wellbeing, there exists a significant barrier to rewilding projects in the form of competition from other issues such as housing, living costs, social services and transportation. These issues not only receive a greater share of an already-stretched government budget, but are deemed more pressing issues for locals as well (Michelle, personal communication, March 4, 2022). This is where the true power in community engagement lies. Engaging with the community enables a service better suited to accommodate often-ignored needs, empowering them to take ownership of the project (B. Wilde, personal communication, March 15, 2022; Kruize et al., 2019). Volunteers provide a vital service in the creation and maintenance of the area, and community-led events are shown to better promote usage of the area, as well as providing valuable knowledge of rewilding to other residents (Hunter et al., 2019; City Studio Vancouver, 2022).

This thesis contributed to rewilding research by analysing it from an environmental justice rather than ecological perspective. While many articles discuss ecosystem services and health and wellbeing benefits of green space in general, few go into greater depth on the more human aspect of urban rewilding, particularly in relation to inclusivity of the groups who would benefit the most (Kruize et al., 2019).

The major limitation of this study was that there was a distinct lack of information about green spaces and accessibility to disabled peoples (Bandukda et al., 2019). This made it hard to find out what barriers already stop them from using green space, and thus also how to make it more usable for certain groups who already are less likely to frequent such spaces (Holland, 2021). Furthermore, much of literature on urban rewilding and urban green space overlapped, making it hard to distinguish what was specific to UGS/urban rewilding and what was applicable to both. Urban rewilding here focused particularly on the development of new ecosystems, such as on green walls

or adapting grey areas such as parking lots into green space, as well as the enhancement of pre-existing ecosystems, for example transforming heavily-managed patches of grass into viable ecosystems with a variety of flora.

Future directions should focus on analysing existing studies and cases specifically tied to urban rewilding and engagement from disadvantaged groups, to further develop this area of research. Furthermore, next steps should also be taken in analysing how urban rewilding fits with other significant issues facing this group, such as housing and living costs.

7 References

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